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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/537,775	03/29/2000	Minoru Yoshimura	P13998-A	7267

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EXAMINER	
TSEGAYE, SABA	

ART UNIT	PAPER NUMBER
2662	9

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/537,775	YOSHIMURA, MINORU	
	Examiner	Art Unit	
	Saba Tsegaye	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. Claims 1-4, 10, 12, 15, 16, 19-21, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over The Admitted Prior Art (Figs 24-26, pages 1-9) in View of Kuroyanagi et al. (US 6,433,900).

Regarding claims 1-4, the Admitted Prior Art discloses, in Figs 24-26, a switch 104; a control section 110; a selector 105; a photocoupler 102a; an optical line terminal 106 has sections of two systems, 0-system transmission/reception section 101a and 1-system transmission/reception section 101b; ONUs 107-1 to 107-n respectively have sections of two systems 103-1a to 103-na and 103-1b to 103-nb; and subscriber terminals 109-1 to 109-n. Further, The Admitted Prior Art a protection switching method fro a passive optical network system including:

detecting a communication abnormality in at least one active-system virtual path established between the optical line terminal and the subscriber terminal through the transmission path and the network unit (page 5, lines 5-14); and

upon detection of a communication abnormality in the active-system virtual path, causing the switch to switch the transmission paths to establish a standby-system virtual path between the optical line terminal and the subscriber terminal serving as a communication partner (page 5, line 15-page 6, line 9; and page 7, lines 4-25).

Regar**ding claims 10, 12, 15, 16, 19-21, 27 and 28,** the Admitted Prior Art discloses, in Figs. 25 and 26, an optical line terminal 106 (as in claim 12); a plurality of optical network units 107-1 through 107-n (as in claims 12, 15); selectors 108-1 through 108-n; a switch 104 (as in

claim 12); a first control section 110 (as in claims 12, 19, 20); second control sections 111-1 through 111-n (as in claims 12, 21); a plurality of subscribers 109-1 through 109-n (as in claim 12); photocouplers 102a and 102b (as in claim 16); a plurality of active-system virtual paths, optical fibers, 112-1a through 112-na (as in claims 12, 15, 19, 28); and a plurality of standby-system virtual paths, optical fibers, 112-1b through 112-nb (as in claims 12, 15, 19, 28) (pages 2-9).

However, the Admitted Prior Art does not expressly disclose to switch only the abnormal transmission path to a normal transmission path without affecting communication through normal virtual paths in the PON system.

Kuroyanagi teaches a redundant configuration only for switching the optical signal of a wavelength in which a fault occurs.

It would have been obvious to one ordinary skill in the art at the time the invention was made to add a method that switches only the abnormal transmission path, such as that suggested by Kuroyanagi, to the method of the Admitted Prior Art. Doing so would avoid a transmission deterioration such as a signal disconnection caused by the switching of the system of a normal optical signal will not be generated (column 5, lines 5-10).

Regarding claims 13 and 14, the Admitted Prior Art in view of Kuroyanagi discloses all the claim limitations as stated above. Further, the Admitted Prior Art and Kuroyanagi disclose that the transmission path is formed from optical fiber. However, the Admitted Prior Art in view of Kuroyanagi does not expressly disclose the transmission path is formed from a metal line or a coaxial cable. Optical fibers are usually preferred for long transmission distances, exposure to electromagnetic interference, or exposure to conditions of repeated mechanical flexing of the

cables. However, the dynamic range provided by conventional optical fiber modulation techniques may not be high enough for analog applications, such as feed links for antenna arrays. Coaxial cables and metal lines provide excellent dynamic range characteristics.

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to substitute a metal line or a coaxial cable to the optical fiber of the Admitted Prior Art in view of Kuroyanagi in order to provide an ease of connection to end station.

2. Claims 5-9, 11 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art in view of Kuroyanagi as applied to claims 1-4, 12, 15, 16, 19-21 and 28 above, and further in view of Anderson et al. (5,838,924).

The Admitted Prior Art in view of Kuroyanagi discloses all the claim limitations as stated above. Further, the Admitted Prior Art discloses that the 0-system and 1-system are irrelevant to the active and standby systems. The active system is a currently used system, and the standby system is a system that is used upon switching from the active system (as in claim 23). However, the Admitted Prior Art does not expressly disclose the active virtual path and the standby virtual path in different bands; and the second active virtual path and the second standby virtual path to share a band assigned to the first active virtual paths.

Anderson teaches that the protection channel bandwidth is not reserved and may be shared by several working connections (column 5, lines 22-34).

It would have been obvious to one ordinary skill in the art at the time of the invention was made to add a method that shares a band between active and standby virtual paths, such as

that suggested by Anderson, in the method of the Admitted Prior Art in order to optimize bandwidth conservation.

3. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art in view of Kuroyanagi as applied to claims 1-4, 12, 15, 16, 19-21 and 28 above, and further in view of Eng et al. (5,455,701).

The Admitted Prior Art in view of Kuroyanagi discloses all the claim limitations as stated above except for the switch outputs in accordance with a header value added to an ATM cell.

Eng teaches a high-speed asynchronous transfer mode packet switching system. Fig. 2 shows an N x M optical star coupler based cell distribution network and a plurality of receivers 161-16k. A controller tunes the receivers and it is responsive to header information in the incoming ATM cells (column 3, lines 3-35).

It would have been obvious to one ordinary skill in the art at the time of the invention was made to add a system that the switch outputs in accordance with a header value added to an ATM cell, such as that suggested by Eng, to the PON system of the Admitted Prior Art in order to direct each of the ATM cell inputs to a desired cell distribution network output.

Response to Arguments

4. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (703) 308-4754. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (703) 305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST
February 13, 2004

JOHN PEZZLO
PRIMARY EXAMINER